

## SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Sin J. Lee Examiner #: 76060 Date: 1-13-2004  
 Art Unit: 1752 Phone Number 272-1333 Serial Number: 10/073,693  
 Mail Box and Bldg/Room Location: 9D60 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

\*\*\*\*\*  
 Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched.  
 Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or  
 utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if  
 known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

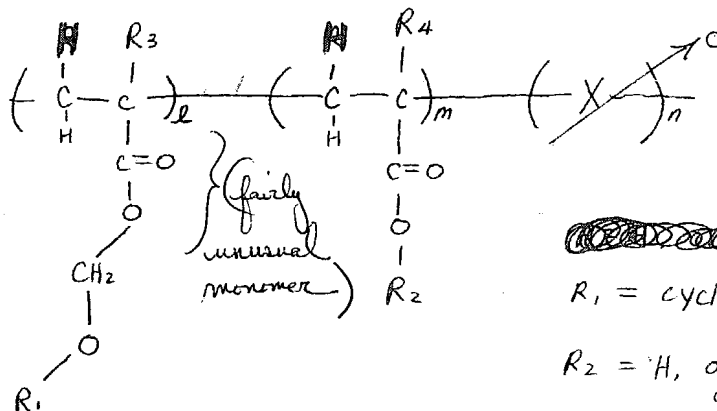
Title of Invention: Polymer for Chemically Amplified Resist  $\neq$  Chemically

Inventors (please provide full names): Park, Joohyeon; Seo, Dongchul; Amplified  
Lee, Jongbum; Jeon, Hyunpyo; Kim, Seongju Resist  
Composition  
containing  
the  
Same

Earliest Priority Filing Date: 7-11-2002

\*For Sequence Searches Only\* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

Please search for the following polymer:



$R_1$  = cyclic alkyl gp (5-30 carbon atoms)

$R_2$  = H, or alkyl gp (1-30 carbon atoms)

$R_3$  &  $R_4$  = independently H or a methyl gp.

$X$  = vinyl ether derivative, styrene derivative, or olefin derivative

$$l = 0.05 - 0.9$$

$$m = 0.1 - 0.7$$

$$n = 0 - 0.7 \text{ (doesn't have to be } n \text{ unit)}$$

## STAFF USE ONLY

Searcher: EL

Searcher Phone #: \_\_\_\_\_

Searcher Location: \_\_\_\_\_

Date Searcher Picked Up: \_\_\_\_\_

Date Completed: 1-14-04

Searcher Prep & Review Time: 5

Clerical Prep Time: \_\_\_\_\_

Online Time: 65

Type of Search there

NA Sequence (#) \_\_\_\_\_

AA Sequence (#) \_\_\_\_\_

Structure (#) (3) (subset)

Bibliographic (am)

Litigation \_\_\_\_\_

Fulltext \_\_\_\_\_

Patent Family \_\_\_\_\_

Other \_\_\_\_\_

## Vendors and cost where applicable

\$ 260.74

STN \_\_\_\_\_

Dialog \_\_\_\_\_

Questel/Orbit \_\_\_\_\_

Dr. Link \_\_\_\_\_

Lexis/Nexis \_\_\_\_\_

Sequence Systems \_\_\_\_\_

WWW/Internet \_\_\_\_\_

Other (specify) \_\_\_\_\_

=> file reg  
 FILE 'REGISTRY' ENTERED AT 13:28:20 ON 14 JAN 2004  
 USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.  
 PLEASE SEE "HELP USAGETERMS" FOR DETAILS.  
 COPYRIGHT (C) 2004 American Chemical Society (ACS)

=> d his

FILE 'LREGISTRY' ENTERED AT 12:31:12 ON 14 JAN 2004  
 L1 STR  
 L2 STR

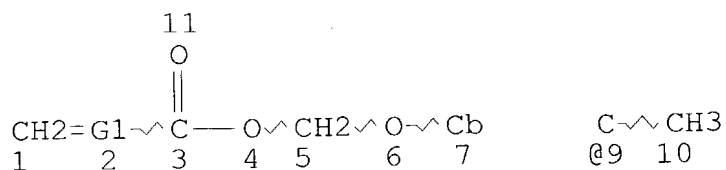
FILE 'REGISTRY' ENTERED AT 13:06:15 ON 14 JAN 2004  
 L3 SCR 2043  
 L4 0 S L1 AND L2 AND L3  
 L5 STR L1  
 L6 0 S L5 AND L2 AND L3  
 L7 0 S L5 AND L3  
 L8 128 S L5 AND L3 FUL  
 SAV L8 LEE693B/A  
 L9 2 S L5 AND L2 AND L3 SSS SAM SUB=L8  
 L10 0 S L1 AND L2 AND L3 SSS SAM SUB=L8  
 L11 0 S L1 AND L3 SSS SAM SUB=L8  
 L12 6 S L1 AND L3 SSS FUL SUB=L8  
 SAV L12 LEE693C/A  
 L13 41 S L5 AND L2 AND L3 SSS FUL SUB=L8  
 SAV L13 LEE693D/A

FILE 'ZCAPLUS' ENTERED AT 13:24:54 ON 14 JAN 2004  
 L14 3 S L12  
 L15 28 S L13  
 L16 156815 S RESIST OR RESISTS OR PHOTORESIST? OR MASK? OR PHOTOMASK  
 L17 8 S L15 AND L16  
 L18 7 S L17 NOT L14

FILE 'REGISTRY' ENTERED AT 13:28:20 ON 14 JAN 2004

=> d l12 que stat

L1 STR



VAR G1=CH/9

NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

GGCAT IS SAT AT 7

DEFAULT ECLEVEL IS LIMITED

ECOUNT IS M5-X30 C AT 7

GRAPH ATTRIBUTES:

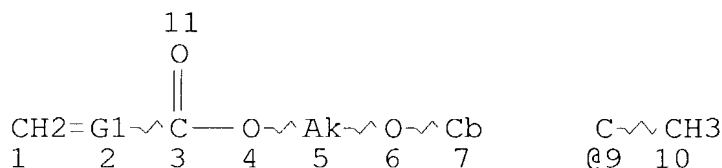
RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 10

STEREO ATTRIBUTES: NONE

L3 SCR 2043

L5 STR



VAR G1=CH/9

NODE ATTRIBUTES:

CONNECT IS E2 RC AT 5

DEFAULT MLEVEL IS ATOM

GGCAT IS SAT AT 5

GGCAT IS SAT AT 7

DEFAULT ECLEVEL IS LIMITED

ECOUNT IS M5-X30 C AT 7

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 10

STEREO ATTRIBUTES: NONE

L8 128 SEA FILE=REGISTRY SSS FUL L5 AND L3

L12 6 SEA FILE=REGISTRY SUB=L8 SSS FUL L1 AND L3

100.0% PROCESSED 57 ITERATIONS

6 ANSWERS

SEARCH TIME: 00.00.01

=> file zcaplus

FILE 'ZCAPLUS' ENTERED AT 13:28:43 ON 14 JAN 2004

USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.

PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

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=> d 114 1-3 ibib abs hitstr hitind

L14 ANSWER 1 OF 3 ZCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2003:56543 ZCAPLUS

DOCUMENT NUMBER: 138:115164

TITLE: Resist compositions for columnar spacer of liquid crystal displays

INVENTOR(S): Bae, Yoo-li; Cha, Hyuk-jin; Lee, Jae-hwan; Hong, Seong-jae; Lee, Keun-joo; Jung, Yong-man; Choi, Sook-young; Ryu, Mi-sun; Kim, Young-keun; Kim, Tae-yeong; Kim, Woong; Yoo, Chun-woo; Lee, Dae-woo; Koo, Dong-kun; Kwon, Moo-hyun; Lee, Chul-woo; Yoon, Sang-il

PATENT ASSIGNEE(S): Adams Technology Co., Ltd., S. Korea

SOURCE: Jpn. Kokai Tokkyo Koho, 18 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003021839	A2	<u>2003</u> 0124	JP 2002-97720	20020329
JP 3467488	B2	<u>2003</u> 1117		
CN 1379060	A	<u>2002</u> 1113	CN 2002-2108748	20020329

PRIORITY APPLN. INFO.:

KR 2001-17151 A 20010331

KR 2002-11196 A 20020302

AB The compns., which give resist film with uniform thickness, good resoln., high residual film rate, and good pattern profile, contain (a) binder resin selected from CH<sub>2</sub>CHX(CO<sub>2</sub>Y<sub>1</sub>)CH<sub>2</sub>CX(CO<sub>2</sub>H)CH<sub>2</sub>CX(CO<sub>2</sub>Y<sub>2</sub>) [X = H, Me; Y<sub>1</sub> = C<sub>2</sub>-16 alkyl, hydroxyalkyl; Y<sub>2</sub> = (meth)acryloyl group-contg. alicyclic group (20 Markush structures are given)], random copolymer A-B-C [monomer unit A = benzyl methacrylate, styrene, .alpha.-methylstyrene, isobornyl (meth)acrylate, dicyclopentanyl (meth)acrylate, dicyclopentenyl (meth)acrylate, dicyclopentanyloxy(meth)acrylate, dicyclopentenyl(meth)acrylate; monomer unit B = acrylic acid, methacrylic acid; monomer unit C = glycidyl methacrylate, hydroxyethyl methacrylate, dimethylaminomethacrylate, acrylamide], or their mixt. 10-40, (b) polyfunctional monomers having ethylenically-unsatd. bond 1-20, (c) photopolymn. initiators 1-10, (d) Si compds. having epoxy group 0.001-0.1, and optionally (e) elastomers having ethylenically-unsatd. bond 1-20 parts. (e) increases elasticity of display panel and prevents damage of black matrixes, color filter pixels, etc., due to external pressure.

IT 488727-07-7 488727-10-2 488727-13-5

(resist compns. contg. alicyclic acrylate-contg. binder resins,  
having ethylenically-unsatd. polyfunctional monomers, and epoxy  
silanes for columnar spacer of liq. crystal displays)

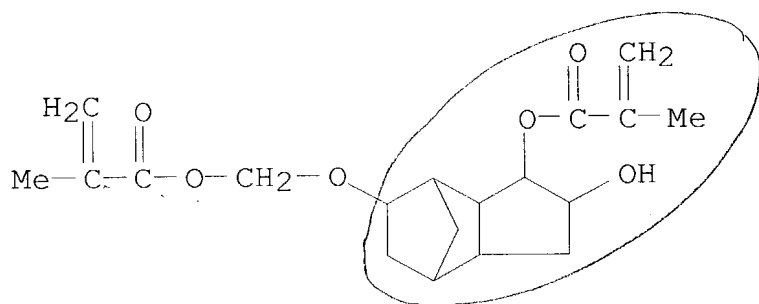
RN 488727-07-7 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, polymer with methyl  
2-methyl-2-propenoate and [[octahydro-2-hydroxy-3-[(2-methyl-1-oxo-2-  
propenyl)oxy]-4,7-methano-1H-inden-5-yl]oxy]methyl  
2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 488727-06-6

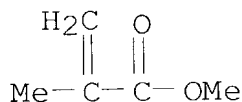
CMF C19 H26 O6



CM 2

CRN 80-62-6

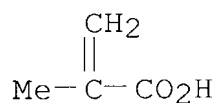
CMF C5 H8 O2



CM 3

CRN 79-41-4

CMF C4 H6 O2



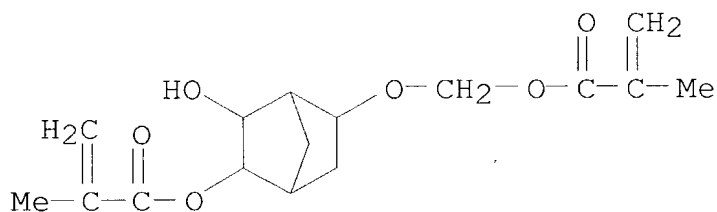
RN 488727-10-2 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, polymer with [[6-hydroxy-5-[(2-methyl-1-oxo-2-propenyl)oxy]bicyclo[2.2.1]hept-2-yl]oxy]methyl 2-methyl-2-propenoate and methyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 488727-09-9

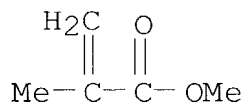
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CM 2

CRN 80-62-6

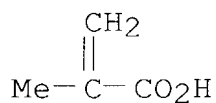
CMF C5 H8 O2



CM 3

CRN 79-41-4

CMF C4 H6 O2



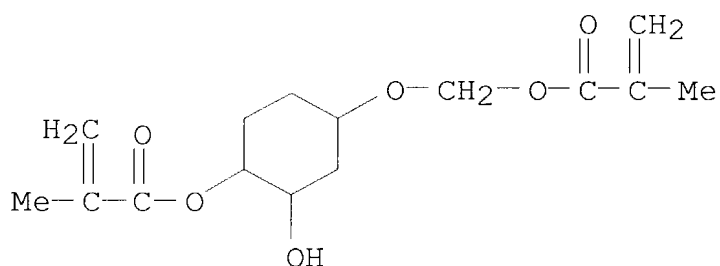
RN 488727-13-5 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, polymer with [[3-hydroxy-4-[(2-methyl-1-oxo-2-propenyl)oxy]cyclohexyl]oxy]methyl 2-methyl-2-propenoate and methyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 488727-12-4

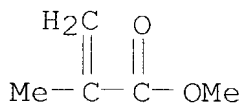
CMF C15 H22 O6



CM 2

CRN 80-62-6

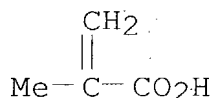
CMF C5 H8 O2



CM 3

CRN 79-41-4

CMF C4 H6 O2



IC ICM G02F001-1339  
 ICS G03F007-027; G03F007-038; G03F007-075  
 CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
 IT 2530-83-8 29570-58-9, Dipentaerythritol hexaacrylate 60506-81-2, Dipentaerythritol pentaacrylate 488727-04-4 **488727-07-7**  
**488727-10-2 488727-13-5** 488727-16-8  
 488727-18-0 488727-21-5 488727-25-9  
 (resist compns. contg. alicyclic acrylate-contg. binder resins, having ethylenically-unsatd. polyfunctional monomers, and epoxy silanes for columnar spacer of liq. crystal displays)

L14 ANSWER 2 OF 3 ZCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1996:485677 ZCAPLUS  
 DOCUMENT NUMBER: 125:117570  
 TITLE: Curable resin compositions suitable for acid rain-resistant coatings with good tape adhesion properties  
 INVENTOR(S): Takagi, Takeshi; Sasaki, Naryuki; Tanaka, Yasuo; Okude, Yoshitaka  
 PATENT ASSIGNEE(S): Nippon Paint Co Ltd, Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 14 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 08120149	A2	19960514	JP 1994-262246	19941026
PRIORITY APPLN. INFO.:			JP 1994-262246	19941026
AB The title compns. contain (A) 40-90% acrylic polymers (OH value 20-40, acid value 1-100, Mn 500-50,000) obtained by polymg. 1-80% OH-contg. (meth)acrylates and 20-99% other ethylenically unsatd. comonomers and (B) 10-60% melamine resins. A polymer A was prepd. from 1,4-cyclohexanedimethanol monoacrylate 17.6, 1,4-cyclohexanediethanol monomethacrylate 21.4, acrylic acid 2.6, styrene 20, Et acrylate 10, Et methacrylate 10, iso-Bu acrylate 10, and iso-Bu methacrylate 8.4 parts and used with U-Van 128.				
IT	<b>179745-29-0P</b> (curable resin compns. suitable for acid rain-resistant coatings)			



with good tape adhesion properties)

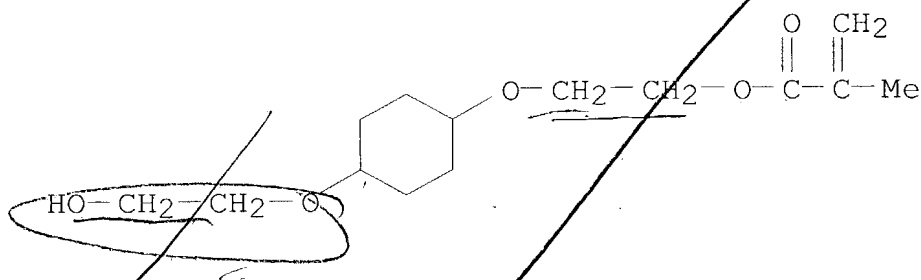
RN 179745-29-0 ZCAPLUS

CN Hexanoic acid, 6-hydroxy-, 2-[(1-oxo-2-propenyl)oxy]ethyl ester, polymer with butyl 2-methyl-2-propenoate, 1,1-dimethylethyl 2-propenoate, ethenylbenzene, formaldehyde, 2-[[4-(2-hydroxyethoxy)cyclohexyl]oxy]ethyl 2-methyl-2-propenoate, 2-hydroxyethyl 2-methyl-2-propenoate, [[4-(hydroxymethoxy)cyclohexyl]oxy]methyl 2-propenoate, 2-propenoic acid and 1,3,5-triazine-2,4,6-triamine (9CI) (CA INDEX NAME)

CM 1

CRN 179745-28-9

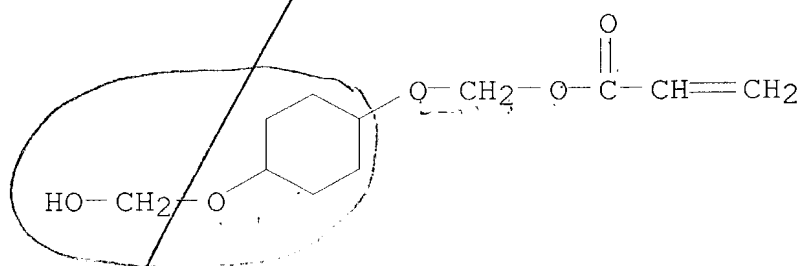
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CM 2

CRN 179745-27-8

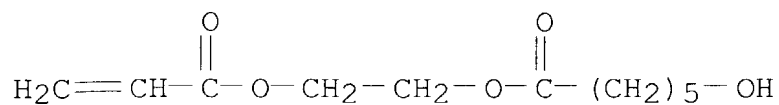
CMF C11 H18 O5



CM 3

CRN 80413-54-3

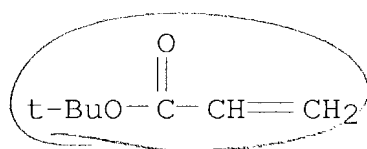
CMF C11 H18 O5



CM 4

CRN 1663-39-4

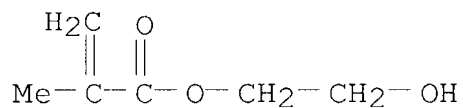
CMF C7 H12 O2



CM 5

CRN 868-77-9

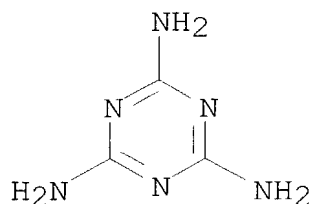
CMF C6 H10 O3



CM 6

CRN 108-78-1

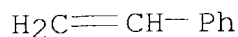
CMF C3 H6 N6



CM 7

CRN 100-42-5

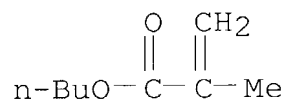
CMF C8 H8



CM 8

CRN 97-88-1

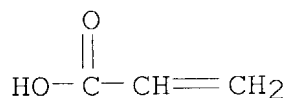
CMF C8 H14 O2



CM 9

CRN 79-10-7

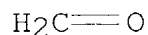
CMF C3 H4 O2



CM 10

CRN 50-00-0

CMF C H2 O



IC ICM C08L033-14

ICS B05D001-36; B05D007-14; C08L061-28; C09D133-14; C09D161-28

CC 42-10 (Coatings, Inks, and Related Products)

IT 179745-17-6P 179745-20-1P 179745-23-4P 179745-26-7P

179745-29-0P 179745-32-5P 179745-35-8P 179745-36-9P

(curable resin compns. suitable for acid rain-resistant coatings  
with good tape adhesion properties)

L14 ANSWER 3 OF 3 ZCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1990:432071 ZCAPLUS  
 DOCUMENT NUMBER: 113:32071  
 TITLE: Acrylic polymer-based optical disks  
 INVENTOR(S): Tajima, Tetsuo; Miwa, Hiroaki; Sudo, Ryoichi  
 PATENT ASSIGNEE(S): Hitachi, Ltd., Japan; Hitachi Maxell, Ltd.  
 SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.

CODEN: JKXXAF

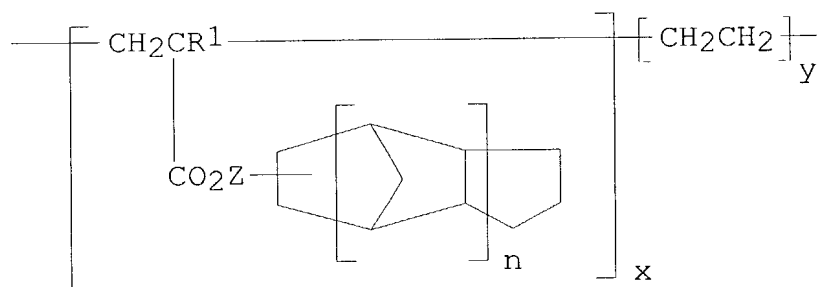
DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 01313513	A2	19891219	JP 1988-141720	19880610
PRIORITY APPLN. INFO.: GI			JP 1988-141720	19880610



I

AB Optical disks with excellent transparency, heat resistance, moisture resistance, impact strength, and sensitivity are composed of alicyclic acrylate copolymers I ( $R_1 = H, Me$ ;  $Z = CH_2, C1-3$  alkyleneoxy;  $n = 1-4$ ;  $x/y = 50/50-95/5$ ). Thus, an injection molded plate composed of I ( $R_1 = H, Z = CH_2CH_2O, n = 1, x/y = 50/50$ ) showed a light transmittance  $\geq 90\%$ , a glass transition point  $\geq 140^\circ C$ , and a DuPont impact strength of  $\geq 100$  cm and gave optical disks with no warpage after 4 h at  $120^\circ C$ , vs., 90, 70, 10, and warpage, resp., for poly(Me methacrylate) disks.

IT 127823-30-7 127823-32-9

(optical disks, transparent, with resistance to heat and moisture and impact)

RN 127823-30-7 ZCAPLUS

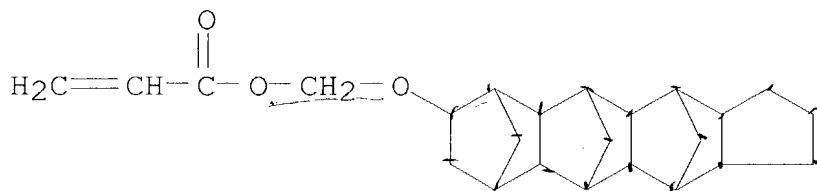
CN 2-Propenoic acid, [(hexadecahydro-4,11:5,10:6,9-trimethano-1H-cyclopent[b]anthracen-7-yl)oxy]methyl ester, polymer with ethene

(9CI) (CA INDEX NAME)

CM 1

CRN 127823-29-4

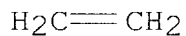
CMF C24 H32 O3



CM 2

CRN 74-85-1

CMF C2 H4



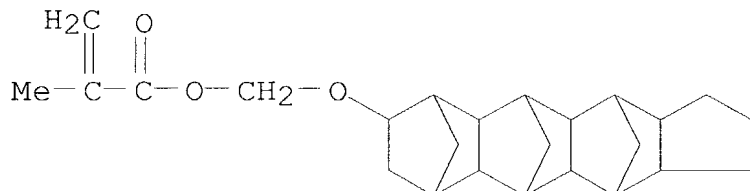
RN 127823-32-9 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, [(hexadecahydro-4,11:5,10:6,9-trimethano-1H-cyclopent[b]anthracen-7-yl)oxy]methyl ester, polymer with ethene (9CI) (CA INDEX NAME)

CM 1

CRN 127823-31-8

CMF C25 H34 O3



CM 2

CRN 74-85-1  
CMF C2 H4

$\text{H}_2\text{C}=\text{CH}_2$

IC ICM C08F220-18  
ICS C08F220-26; G11B007-24  
CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
IT 127823-19-2 127823-20-5 127823-22-7 127823-24-9 127823-26-1  
127823-28-3 **127823-30-7 127823-32-9**  
(optical disks, transparent, with resistance to heat and moisture and impact)

=> d (118) 1-7 cbib abs hitstr nitind

*(structurally pretty junky)*

L18 ANSWER 1 OF 7 ZCAPLUS COPYRIGHT 2004 ACS on STN  
2000:823001 Document No. 134:23500 Chemically amplified positive-working **resist** and pattern formation using same. Maeda, Katsumi; Iwasa, Shigeyuki; Hasegawa, Etsuo (Nec Corp., Japan). Jpn. Kokai Tokkyo Koho JP 2000321772 A2 20001124, 11 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1999-128838 19990510.

AB The title **resist** contains a polymer having a repeating unit  $\text{CH}_2\text{CR}_1(\text{CO}_2\text{G})$  ( $\text{R}_1 = \text{H}$  or  $\text{Me}$ ;  $\text{G}$  = alicyclic hydrocarbon having a 1,2-diol structure) and a photoacid generator that generates an acid by exposure with light. The **resist** is coated on a substrate to be processed, patternwise exposed to light of wavelength 180-220 nm, baked, and developed to form a pattern. The **resist** shows high transparency toward light of wavelength  $\geq 220$  nm and provides high resolu. patterns showing good dry etch resistance and adhesion to substrate.

IT **309260-47-7P**  
(chem. amplification-type **resist** contg. acrylic copolymer and photoacid generator)

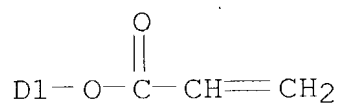
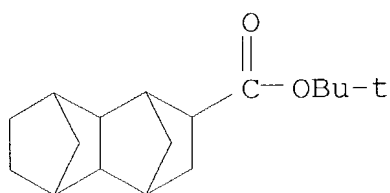
RN 309260-47-7 ZCAPLUS

CN 1,4:5,8-Dimethanonaphthalene-2-carboxylic acid, decahydro-6(or 7)-[(1-oxo-2-propenyl)oxy]-, 1,1-dimethylethyl ester, polymer with 2-methyl-2-propenoic acid and 2-[(octahydro-1,2(or 2,3)-dihydroxy-4,7-methano-1H-inden-5-yl)oxy]ethyl 2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 217652-52-3  
CMF C20 H28 O4

CCI IDS

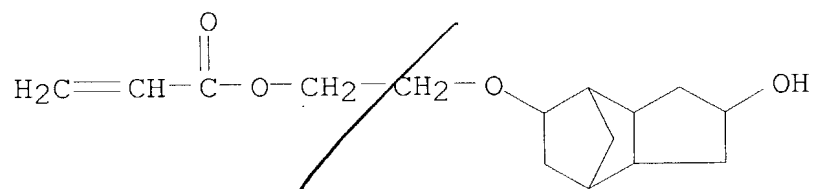


CM 2

CRN 140919-18-2

CMF C15 H22 O5

CCI IDS

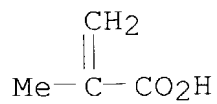


D1-OH

CM 3

CRN 79-41-4

CMF C4 H6 O2



- IC ICM G03F007-039  
ICS C08F020-28; C08F220-28; C08K005-00; C08L033-14; H01L021-027
- CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
Section cross-reference(s): 38, 76
- ST pos **resist** acrylic copolymer lithog; alicyclic diol acrylate copolymer **resist**; semiconductor device fabrication **resist**
- IT Lithography  
(chem. amplification-type **resist** contg. acrylic copolymer and photoacid generator for lithog.)
- IT Semiconductor device fabrication  
(chem. amplification-type **resist** contg. acrylic copolymer and photoacid generator for semiconductor device fabrication)
- IT **Resists**  
(pos.-working; chem. amplification-type **resist** contg. acrylic copolymer and photoacid generator)
- IT 247262-12-0P 247565-06-6P 308831-06-3P 309260-44-4P  
309260-46-6P **309260-47-7P**  
(chem. amplification-type **resist** contg. acrylic copolymer and photoacid generator)
- IT 66003-78-9, Triphenylsulfonium triflate  
(chem. amplification-type **resist** contg. acrylic copolymer and photoacid generator)
- L18 ANSWER 2 OF 7 ZCAPLUS COPYRIGHT 2004 ACS on STN  
2000:713000 Document No. 133:303554 Polymers having diol structures, their negative **photoresist** compositions, and pattern formation. Iwasa, Shigeyuki; Maeda, Katsumi; Hasegawa, Etsuo (NEC Corp., Japan). Jpn. Kokai Tokkyo Koho JP 2000281729 A2 20001010, 21 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1999-87403 19990330.
- AB The polymers have repeating units CH<sub>2</sub>CR<sub>1</sub>[C(:O)OR<sub>2</sub>OX] (R<sub>1</sub> = H, Me; R<sub>2</sub> = C<sub>2</sub>-6 alkylene; X = diol-contg. alicyclic alkyl). The **photoresist** compns. contain (A) the polymers, (B) crosslinking agents having C(:O)NCH<sub>2</sub>OR<sub>14</sub> (R<sub>14</sub> = H, C<sub>1</sub>-6 alkyl, C<sub>3</sub>-6 oxoalkyl), and (C) photoacid generators. Patterns are formed by applying the **photoresist** compns. on substrates, exposing with 180-220-nm light, baking, and developing. The **photoresist** compns. are useful in photolithog. for manuf. of semiconductor devices. The **photoresist** compns. show high transparency for ArF light and good dry-etching resistance and give patterns without deformation by swelling and peeling.
- IT **300725-76-2P**  
(polymers having diol-contg. alicyclic groups with high dry-etching resistance for neg. **photoresists**)



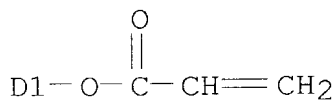
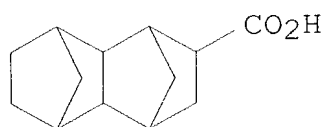
RN 300725-76-2 ZCAPLUS  
 CN 1,4:5,8-Dimethanonaphthalene-2-carboxylic acid, decahydro-6(or  
 7)-[(1-oxo-2-propenyl)oxy]-, polymer with methyl  
 2-methyl-2-propenoate and 2-[[octahydro-1,2(or 2,3)-dihydroxy-4,7-  
 methano-1H-inden-5-yl]oxy]ethyl 2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 195398-52-8

CMF C16 H20 O4

CCI IDS

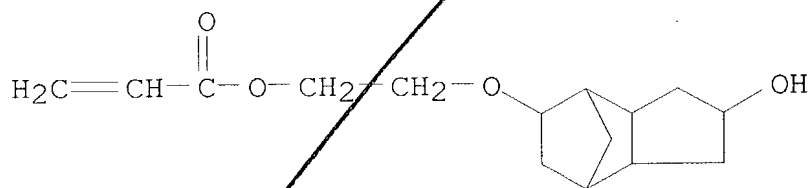


CM 2

CRN 140919-18-2

CMF C15 H22 O5

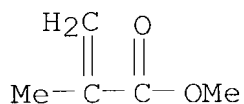
CCI IDS



D1-OH

CM 3

CRN 80-62-6  
CMF C5 H8 O2



- IC ICM C08F220-26  
ICS C08L033-14; G03F007-004; G03F007-038
- CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
Section cross-reference(s): 76
- ST diol polymer neg **photoresist** lithog semiconductor; dry etching resistance diol polymer **photoresist**; pattern formation diol polymer **photoresist** lithog; alicyclic diol acrylate polymer neg **photoresist**
- IT Negative **photoresists**  
Semiconductor device fabrication  
(polymers having diol-contg. alicyclic groups with high dry-etching resistance for neg. **photoresists**)
- IT 4356-60-9 13747-14-3 15968-37-3 17464-88-9 221206-62-8  
(crosslinking agents; polymers having diol-contg. alicyclic groups with high dry-etching resistance for neg. **photoresists**)
- IT 211377-75-2  
(crosslinking catalysts; polymers having diol-contg. alicyclic groups with high dry-etching resistance for neg. **photoresists**)
- IT 1886-74-4 56530-39-3 66003-78-9, Triphenylsulfonium trifluoromethanesulfonate 157959-61-0, Bis(tert-butylphenyl)iodonium trifluoromethanesulfonate 171292-12-9 194999-85-4  
(photoacid generators; polymers having diol-contg. alicyclic groups with high dry-etching resistance for neg. **photoresists**)
- IT 242136-37-4P 242136-38-5P 300725-70-6P 300725-71-7P  
300725-73-9P 300725-75-1P **300725-76-2P** 300725-77-3P  
300725-79-5P  
(polymers having diol-contg. alicyclic groups with high dry-etching resistance for neg. **photoresists**)
- L18 ANSWER 3 OF 7 ZCAPLUS COPYRIGHT 2004 ACS on STN  
1998:735444 Document No. 130:45300 Photosensitive **resist** composition and patterning using it for manufacture of semiconductor device. Shinoda, Naomi; Gokawachi, Toru; Nakase, Makoto; Asakawa, Koji; Okino, Takeshi (Toshiba Corp., Japan). Jpn. Kokai Tokkyo Koho

JP 10301283 A2 19981113 Heisei, 34 pp. (Japanese). CODEN: JKXXAF.  
APPLICATION: JP 1997-110706 19970428.

AB The compn. contains a polymer, a light-induced acid generator, and R1X1R2 (R1 = org. group; X1 = CO, COO, CONR3, SO2, SO2NR3, O; R2 = alicyclic group-contg. group; tertiary C atom in R2 is directly bonded to X1; R3 = H, halo, hydrocarbyl). The method involves the following steps; (1) forming a film on a substrate from the compn., (2) exposing, (3) heating the resulting patterned film, (4) developing the film with an aq. alkali soln., and (5) selectively removing the exposed part. The compn. showed high transparency for short wavelength and good alkali developability and dry etching resistance.

IT **216974-87-7 216974-89-9**  
(alkali-developable **photoresist** for patterning in  
manuf. of semiconductor device)

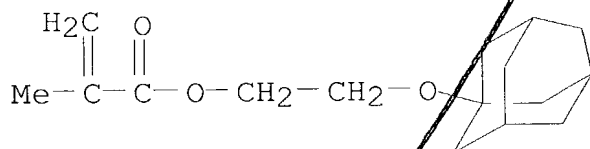
RN 216974-87-7 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, 2-(tricyclo[3.3.1.1<sup>3,7</sup>]decyloxy)ethyl ester, polymer with (1R,2S,5R)-5-methyl-2-(1-methylethyl)cyclohexyl 2-propenoate and 2-propenoic acid (9CI) (CA INDEX NAME)

CM 1

CRN 150567-65-0

CMF C16 H24 O3

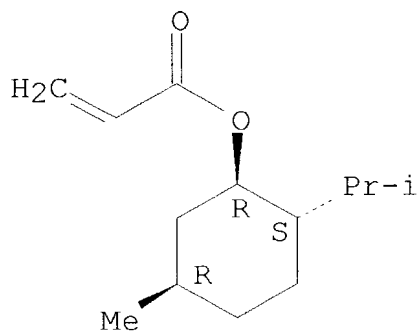


CM 2

CRN 4835-96-5

CMF C13 H22 O2

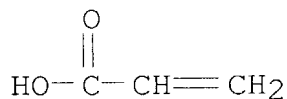
Absolute stereochemistry. Rotation (-).



CM 3

CRN 79-10-7

CMF C3 H4 O2



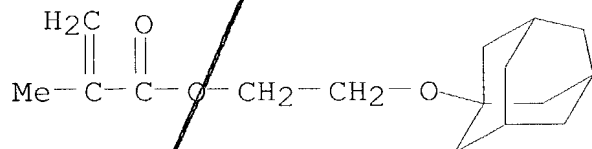
RN 216974-89-9 ZCZPLUS

CN 2-Propenoic acid, 2-methyl-, polymer with rel-(1R,2S,5R)-5-methyl-2-(1-methylethyl)cyclohexyl 2-methyl-2-propenoate and 2-(tricyclo[3.3.1.1<sup>3,7</sup>]decyloxy)ethyl 2-methyl-2-propenoate (9CI)  
(CA INDEX NAME)

CM 1

CRN 150567-65-0

CMF C16 H24 O3

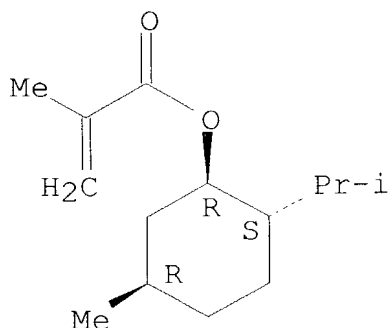


CM 2

CRN 7372-67-0

CMF C14 H24 O2

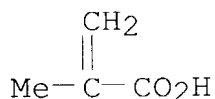
Relative stereochemistry.



CM 3

CRN 79-41-4

CMF C4 H6 O2



IC ICM G03F007-039

ICS C08K005-04; C08K005-20; C08K005-41; C08L033-00; C08L043-02;  
H01L021-027CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and  
Other Reprographic Processes)  
Section cross-reference(s): 76ST **photoresist** alkali developability adamantane carbonate  
additive; cyclohexane carbonate additive **photoresist**  
alkali developable; furanyladamantane carbonate additive  
**photoresist** alkali developable; pyranilyadamantane carbonate  
additive **photoresist** alkali developable; menthyl  
methacrylate polymer **photoresist** alkali developable;  
etching resistance **photoresist** patterning semiconductor  
deviceIT **Photoresists**

Semiconductor device fabrication

(alkali-developable **photoresist** for patterning in  
manuf. of semiconductor device)IT 66003-78-9, Triphenylsulfonium triflate 216974-76-4 216974-77-5  
(acid generator; alkali-developable **photoresist** for

patterning in manuf. of semiconductor device)

IT 174952-51-3 181017-30-1, tert-Butyl methacrylate-menthyl  
methacrylate-methacrylic acid copolymer 194879-32-8 202654-72-6  
216974-78-6 216974-79-7 216974-80-0 216974-81-1 216974-82-2  
216974-83-3 216974-84-4 216974-85-5 216974-86-6  
**216974-87-7** 216974-88-8 **216974-89-9**  
216974-90-2  
(alkali-developable **photoresist** for patterning in  
manuf. of semiconductor device)

L18 ANSWER 4 OF 7 ZCAPLUS COPYRIGHT 2004 ACS on STN  
1998:545694 Document No. 129:223253 Positive-working  
**photoresist** composition. Aogo, Toshiaki; Sato, Kenichiro  
(Fuji Photo Film Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP  
10221852 A2 19980821 Heisei, 58 pp. (Japanese). CODEN: JKXXAF.  
APPLICATION: JP 1997-24011 19970206.

AB The title compn. comprises a resin having .gtoreq.1 repeating unit  
contg. groups that are decompd. upon active ray or irradiation to  
generate acid, .gtoreq.1 alicyclic group-contg. repeating unit, and  
.gtoreq.1 repeating unit contg. groups that are decompd. by the  
action of acid to increase the soly. in alk. developing solns. The  
compn. shows high sensitivity toward light of wavelength .ltoreq.250  
nm, esp. .ltoreq.220 nm, and high dry etch resistance and provides  
high resolu. **resist** patterns with good profile independent  
of the elapse of time from exposure to post-bake.

IT **212579-92-5P**  
(**photoresist** compn. contg. polymer having  
acid-generating group, alicyclic group, and alkali-sol. group)

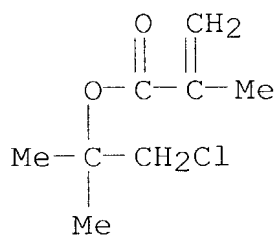
RN 212579-92-5 ZCAPLUS

CN Sulfonium, triphenyl-, salt with 3-sulfopropyl 2-methyl-2-propenoate  
(1:1), polymer with 2-chloro-1,1-dimethylethyl 2-methyl-2-  
propenoate, 2-[(2-hydroxy-2,6,6-trimethylbicyclo[3.1.1]hept-3-  
yl)oxy]ethyl 2-methyl-2-propenoate and 2-methyl-2-propenoic acid  
(9CI) (CA INDEX NAME)

CM 1

CRN 212579-91-4

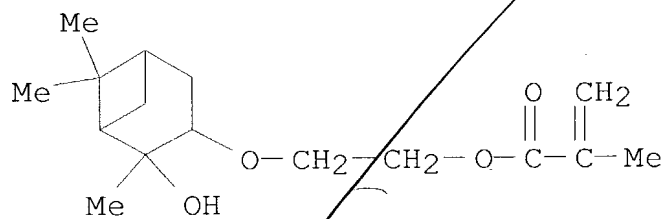
CMF C8 H13 Cl O2



CM 2

CRN 212579-90-3

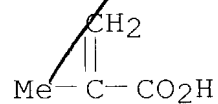
CMF C16 H26 O4



CM 3

CRN 79-41-4

CMF C4 H6 O2



CM 4

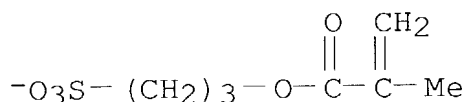
CRN 201683-79-6

CMF C18 H15 S . C7 H11 O5 S

CM 5

CRN 133945-31-0

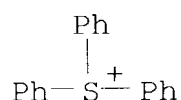
CMF C7 H11 O5 S



CM 6

CRN 18393-55-0

CMF C18 H15 S



IC ICM G03F007-039

ICS G03F007-039; G03F007-004; G03F007-033; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 38

ST **photoresist** alicyclic polymer; acid generating polymer **photoresist**; alkali soluble polymer **photoresist**IT Positive **photoresists**

(photoresist compn. contg. polymer having

acid-generating group, alicyclic group, and alkali-sol. group)

IT 212579-87-8P 212579-89-0P **212579-92-5P** 212579-95-8P  
 212580-01-3P 212580-02-4P 212580-07-9P 212580-08-0P  
 212580-11-5P 212580-14-8P 212580-16-0P 212580-19-3P  
 212580-21-7P 212580-24-0P 212580-27-3P 212580-30-8P  
 212580-33-1P 212580-36-4P 212580-37-5P 212580-40-0P  
 212580-41-1P 212628-39-2P

(photoresist compn. contg. polymer having

acid-generating group, alicyclic group, and alkali-sol. group)

L18 ANSWER 5 OF 7 ZCAPLUS COPYRIGHT 2004 ACS on STN

1997:594565 Document No. 127:248875 Polymers and photosensitive resin compositions using the same, and high-resolution heat-resistant pattern formation therefrom by far-UV lithography. Iwasa, Shigeyuki; Maeda, Katsumi; Nakano, Kaichiro; Hasegawa, Etsuo (NEC Corp., Japan). Jpn. Kokai Tokkyo Koho JP 09221526 A2 19970826 Heisei, 16 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1996-309742 19961120. PRIORITY: JP 1995-322039 19951211.

AB The title polymers are [CH<sub>2</sub>C(R<sub>1</sub>)(CO<sub>2</sub>R<sub>2</sub>)]<sub>x</sub>[CH<sub>2</sub>C(R<sub>3</sub>)[CO<sub>2</sub>C(R<sub>4</sub>)(R<sub>5</sub>)(OR<sub>6</sub>)]<sub>y</sub>[CH<sub>2</sub>C(R<sub>7</sub>)(CO<sub>2</sub>H)]<sub>z</sub> (R<sub>1</sub>, R<sub>3</sub>, R<sub>7</sub> = H, Me; R<sub>2</sub> = C<sub>7</sub>-13 bridged



cyclohydrocarbyl; R4 = H, C1-2 hydrocarbyl; R5 = C1-2 hydrocarbyl; R6 = C1-12 hydrocarbyl with or without 1-12 alkoxy or C1-13 acyl substituent;  $x + y + z = 1$ ;  $x = 0.1-0.9$ ;  $y = 0.1-0.7$ ;  $z = 0-0.7$ ) with Mw 1000-1,000,000 and used with photochem. acid generators for pattern making with light with wavelength 180-220 nm. Fancryl FA-513A, 1-ethoxyethyl methacrylate, and methacrylic acid were copolymd. in 5:3:2 molar ratio and the resulting copolymer was used with N-hydroxysuccinimide toluenesulfonate with line and space resolu. 0.20 .mu.m at exposure about 30 mJ/cm<sup>2</sup>.

IT 195816-08-1P

(acrylic polymers and photosensitive resin compns. using the same, and high-resolu. heat-resistant pattern formation therefrom by far-UV lithog.)

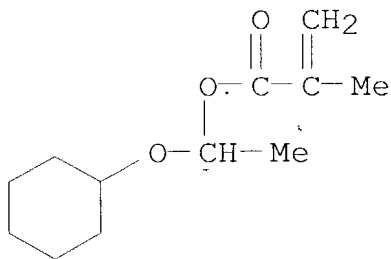
RN 195816-08-1 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, polymer with 1-(cyclohexyloxy)ethyl 2-methyl-2-propenoate and octahydro-4,7-methano-1H-inden-5-yl 2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 143556-62-1

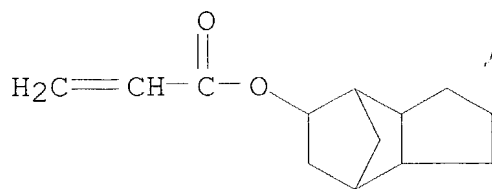
CMF C12 H20 O3



CM 2

CRN 7398-56-3

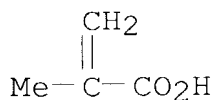
CMF C13 H18 O2



c.c.

CM 3

CRN 79-41-4  
CMF C4 H6 O2



IC ICM C08F220-28  
ICS C08F220-06; C08F220-18; C09D133-14; G03F007-039; H01L021-027  
CC 37-6 (Plastics Manufacture and Processing)  
Section cross-reference(s): 74, 76  
ST **photoresist** acrylic far UV lithog  
IT Heat-resistant materials

**Photoresists**

(acrylic polymers and photosensitive resin compns. using the same, and high-resoln. heat-resistant pattern formation therefrom by far-UV lithog.)

IT 182073-92-3P 182073-93-4P 182073-94-5P 182073-95-6P  
182073-96-7P 195816-03-6P 195816-05-8P 195816-07-0P  
**195816-08-1P** 195816-10-5P 195816-12-7P 195816-14-9P

(acrylic polymers and photosensitive resin compns. using the same, and high-resoln. heat-resistant pattern formation therefrom by far-UV lithog.)

L18 ANSWER 6 OF 7 ZCAPLUS COPYRIGHT 2004 ACS on STN  
1996:422211 Document No. 125:71909 Alkali development-type  
**photoresist** composition. Chiba, Hideki; Saito, Norihiko;  
Sano, Kimyasu; Naito, Makiko (Japan Synthetic Rubber Co Ltd, Japan).  
Jpn. Kokai Tokkyo Koho JP 08078318 A2 19960322 Heisei, 12 pp.  
(Japanese). CODEN: JKXXAF. APPLICATION: JP 1994-240504 19940908.

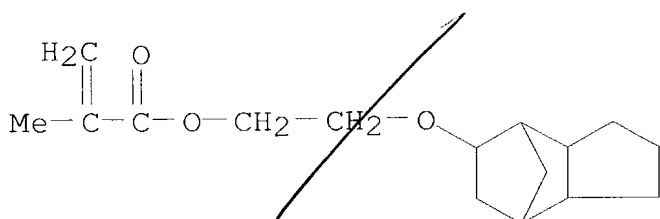
AB The title **photoresist** compn. contains (a) a copolymer comprising unsatd. carboxylic acids 5-40, radically polymerizable OH-contg. compds. 10-40, (meth)acrylic acid cyclic alkyl esters 0-60, and other radically polymerizable compds. 20-60 wt.%, (b) a polymerizable compd. having .gtoreq.1 ethylenic unsatd. double bond, and (c) a photopolymn. initiator. The compn. shows good alkali developability and high resoln. even if its film is thick and provides high-quality patterns with good resistance to plating solns., chems., and soft solder, and is useful for manuf. of semiconductor devices. Thus, a **photoresist** comprised methacrylic acid-2-hydroxyethyl methacrylate-dicyclopentanyl methacrylate-styrene-1,3-butadiene copolymer, Aronix M-8060

(monomer), Lucirin TPO and Irgacure 651 (photopolymn. initiator).  
 IT **178461-28-4P**, Acrylic acid-dicyclopentanyloxyethyl  
 methacrylate-2-hydroxyethyl acrylate-isoprene-styrene copolymer  
 (alkali-developable **photoresist** compn.)  
 RN 178461-28-4 ZCAPLUS  
 CN 2-Propenoic acid, 2-methyl-, 2-[(octahydro-4,7-methano-1H-inden-5-yl)oxy]ethyl ester, polymer with ethenylbenzene, 2-hydroxyethyl 2-propenoate, 2-methyl-1,3-butadiene and 2-propenoic acid (9CI) (CA INDEX NAME)

CM 1

CRN 88449-54-1

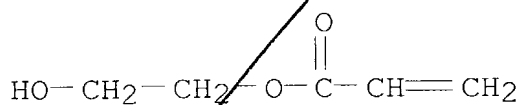
CMF C16 H24 O3



CM 2

CRN 818-61-1

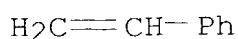
CMF C5 H8 O3



CM 3

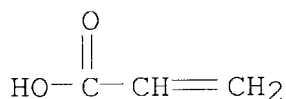
CRN 100-42-5

CMF C8 H8



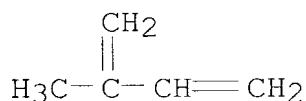
CM 4

CRN 79-10-7  
CMF C3 H4 O2



CM 5

CRN 78-79-5  
CMF C5 H8



IC ICM H01L021-027  
ICS C08L033-02; C08L033-04; C09D004-00; G03F007-027; G03F007-028;  
G03F007-033; H05K003-06; H05K003-18; H05K003-28

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and  
Other Reprographic Processes)  
Section cross-reference(s): 76

ST alkali development **photoresist** compn

IT **Resists**

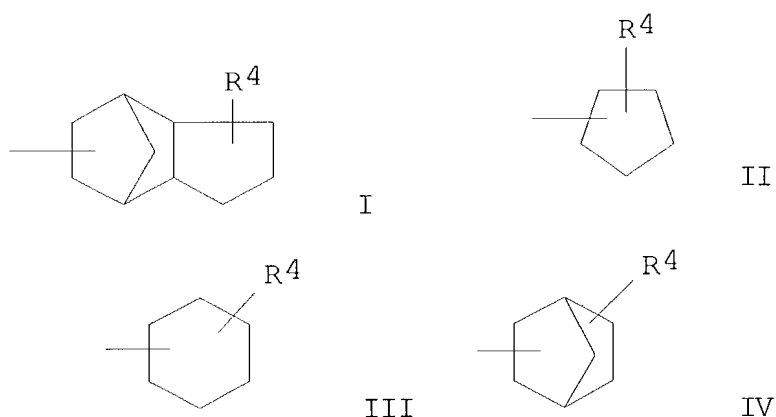
(photo-, alkali-developable **photoresist** compn.)

IT 178461-26-2P, 1,3-Butadiene-dicyclopentanyl methacrylate-2-  
hydroxyethyl methacrylate-methacrylic acid-styrene copolymer  
178461-27-3P, 1,3-Butadiene-cyclohexyl methacrylate-2-hydroxy-3-  
phenoxypropyl methacrylate-methacrylic acid-styrene copolymer  
**178461-28-4P**, Acrylic acid-dicyclopentanyloxyethyl  
methacrylate-2-hydroxyethyl acrylate-isoprene-styrene copolymer  
178461-29-5P, 2-Hydroxyethyl methacrylate-isobornyl  
methacrylate-isoprene-methacrylic acid-2-methylstyrene copolymer  
178461-30-8P, 2-Hydroxyethyl 2-(acryloyloxy)ethyl  
phthalate-1,3-butadiene-crotonic acid-dicyclopentanyl  
methacrylate-glycidyl methacrylate-styrene copolymer  
(alkali-developable **photoresist** compn.)

L18 ANSWER 7 OF 7 ZCAPLUS COPYRIGHT 2004 ACS on STN  
1995:746496 Document No. 123:242079 Photosensitive resin compositions  
containing vinyl monomers having cycloalkyl group and photosensitive  
films therefrom. Sawabe, Masaru; Ishimaru, Toshiaki; Kobayashi,

Akihiro (Hitachi Chemical Co Ltd, Japan). Jpn. Kokai Tokkyo Koho JP 07140650 A2 19950602 Heisei, 9 pp. (Japanese). CODEN: JKXXAF.  
APPLICATION: JP 1993-144765 19930616.

GI



AB The resin compns. contain (A) a polymer, obtained by copolymn. of (a)  $\text{CH}_2:\text{CR}_1\text{CO}_2(\text{R}_2\text{O})_n\text{R}_3$  ( $\text{R}_1 = \text{H}$ , halo, lower alkyl;  $\text{R}_2 = \text{C}_1\text{-5}$  alkylene;  $\text{R}_3 = \text{I, II, III, IV}$ ;  $\text{R}_4 = \text{H}$ , halo, lower alkyl;  $n = 1\text{-}23$ ) 5-85, (b) vinyl monomers having carboxy group 15-30, (c) vinyl monomers other than (a) and (b) 0-80 parts at total amt. of (a), (b), and (c) 100 parts, (B) photopolymerizable unsatd. compds. having  $\geq 2$  ethylenic bond, and (C) a photopolymn. initiator. Also claimed are photosensitive films obtained by laminating a support film with the above compn. The compns. provide **resists** which show good adhesion to metal, high plating resistance, flexibility, good **resist** profile, and peeling property.

IT 168061-29-8 168061-31-2  
(**photoresist** compns. contg. acrylic polymers having poly(alkylene glycol) cycloalkyl ether acrylates as monomer unit with good adhesion to metal, high plating resistance, peeling property, flexibility, and **resist** profile)

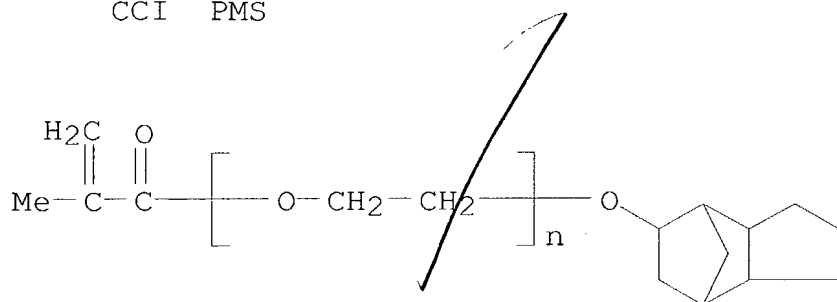
RN 168061-29-8 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, polymer with methyl 2-methyl-2-propenoate and  $\alpha$ -(2-methyl-1-oxo-2-propenyl)- $\omega$ -(octahydro-4,7-methano-1H-inden-5-yl)oxy]poly(oxy-1,2-ethanediyl) (9CI) (CA INDEX NAME)

CM 1

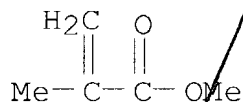
CRN 168061-28-7

CMF (C2 H4 O)n C14 H20 O2  
CCI PMS



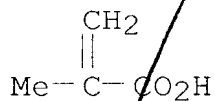
CM 2

CRN 80-62-6  
CMF C5 H8 O2



CM 3

CRN 79-41-4  
CMF C4 H6 O2

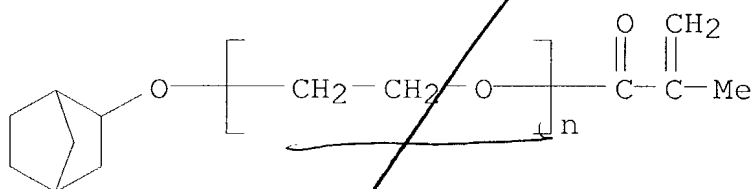


RN 168061-31-2 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, polymer with methyl  
2-methyl-2-propenoate and .alpha.-(2-methyl-1-oxo-2-propenyl)-  
.omega.-(bicyclo[2.2.1]hept-2-yloxy)poly(oxy-1,2-ethanediyl) (9CI)  
(CA INDEX NAME)

CM 1

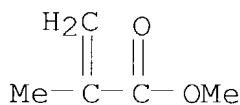
CRN 168061-30-1  
CMF (C2 H4 O)n C11 H16 O2  
CCI PMS



CM 2

CRN 80-62-6

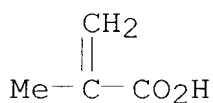
CMF C5 H8 O2



CM 3

CRN 79-41-4

CMF C4 H6 O2



IC ICM G03F007-027

ICS G03F007-004; G03F007-028; G03F007-033; G03F007-038;  
H01L021-027; H05K003-00; H05K003-18CC 74-6 (Radiation Chemistry, Photochemistry, and Photographic and  
Other Reprographic Processes)ST **resist** polyoxyalkylene cycloalkyl ether acrylate; alkali  
developable **resist** cycloalkoxyalkyl acrylateIT **Resists**(photo-, alkali-developable; **photoresist** compns. contg.  
acrylic polymers having poly(alkylene glycol) cycloalkyl ether  
acrylates as monomer unit with good adhesion to metal, high  
plating resistance, peeling property, flexibility, and  
**resist** profile)IT 54380-33-5, .gamma.-Chloro-.beta.-hydroxypropyl .beta.-  
methacryloyloxyethyl o-phthalate

(MECHPP; **photoresist** compns. contg. acrylic polymers having poly(alkylene glycol) cycloalkyl ether acrylates as monomer unit with good adhesion to metal, high plating resistance, peeling property, flexibility, and **resist** profile)

IT 41637-38-1, BPE 10 168061-27-6 **168061-29-8**

**168061-31-2** 168061-33-4

(**photoresist** compns. contg. acrylic polymers having poly(alkylene glycol) cycloalkyl ether acrylates as monomer unit with good adhesion to metal, high plating resistance, peeling property, flexibility, and **resist** profile)